

Unconventional Gas and Fracking

Parliamentary Briefing ahead of Scottish Green Party Debate: Energy and Climate Change

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Introduction

The Intergovernmental Panel on Climate Change's 5th Assessment Report¹ warns that **we are on a path to catastrophic climate change unless we rapidly de-carbonise our energy sector**. Given our failure to date to meet legally binding targets under the Climate Act, opening up a new frontier of high carbon fossil fuels in a country with such abundant renewable resources as Scotland is grossly irresponsible.

Further, there is a growing body of evidence that environmental and health risks associated with onshore unconventional gas extraction, including shale gas and coalbed methane, are inherent and impossible to eliminate. Friends of the Earth Scotland consider that **a ban on unconventional gas extraction is necessary if we are serious about meeting our climate targets, avoiding 2°C warming, and protecting communities**.

What is unconventional gas?

Shale gas, coalbed methane and tight gas are known collectively as 'unconventional' because of the novel techniques, such as horizontal drilling, de-pressurising and hydraulic fracturing, used to extract the gas. Hydraulic fracturing, or 'fracking', is a controversial technique often used to exploit unconventional sources of gas, such as shale gas and coal bed methane. It is an expensive process that is only economically viable when the price of fossil fuels are high. It involves drilling up to several kilometres deep and pumping gallons of water, proppants, and toxic chemicals under high pressure into the borehole to open up fractures and ease the flow of gas for extraction.

Unlike shale gas, coalbed methane extraction does not always involve fracking – at least not in the early years of a development. Instead, coal seams are de-pressurised by pumping out large volumes of water. But as gas flow starts to decline after a few years, wells are often fracked to increase productivity. In Australia the industry estimates that up to 40% of coalbed methane wells end up being fracked. **There are serious environmental problems associated with shale gas extraction, and coalbed methane extraction regardless of whether fracking takes place**. In fact, because coalbed methane is significantly shallower than shale rock certain risks, such as groundwater contamination, are increased, and the process of fracking simply adds to and exacerbates these impacts.

What are the risks?

In addition to introducing highly toxic chemicals used in drilling muds and fracking fluids, both processes carry the risk of mobilising naturally occurring BTEX² chemicals and radioactive substances, which can migrate into and contaminate groundwater, soil and air. This has potentially devastating consequences for public health and the environment. **Communities in Australia are already suffering from symptoms associated with exposure to these chemicals, and a growing body of research points to impacts such as low birth weights and birth defects in the USA**.³ The authors

¹ <http://www.ipcc.ch/>

² BTEX (benzene, toluene, ethylbenzene and xylenes) are volatile organic compounds which have harmful effects on the nervous system. Benzene is a known carcinogen and affects fertility

³ A working paper from Cornell University (Elaine L. Hill) found that the incidence of low birth weight in pregnant mothers living within 2.5 km of a gas well increased by 25%: <http://dyson.cornell.edu/research/researchpdf/wp/2012/Cornell-Dyson-wp1212.pdf>.

A Colorado School of Public Health (McKenzie et al) study of infants born to mothers within 10 mile of gas drilling sites found links between density and proximity to wells, and increased precedence of congenital heart defects and neural tube defects: <http://ehp.niehs.nih.gov/wp-content/uploads/122/1/ehp.1306722.pdf>.

of a study from Cornell University warn that the gas boom is an uncontrolled health experiment on an enormous scale and make a plea for badly needed research on the likelihood and impact of these chemicals entering the food chain via animal products.⁴

Unburnable Carbon

Even if it was safe to extract this gas, if we want to prevent the worst impacts of climate change it is not safe to burn it. Analysis by the Carbon Tracker Initiative shows that in order to have a reasonable chance of staying below 2°C warming, 80% of the world's proven fossil fuel reserves must not be burned unabated. **In the context of the continued failure of CCS development, the latest climate science, our overabundance of fossil fuels and renewable resources, it is utterly irresponsible to pursue a new source of yet more fossil fuel.** The impact of 'fugitive emissions' through leakage, in addition to flaring and venting has led scientists to argue that the climate impact of unconventional gas is greater than that of conventional natural gas, and some to suggest it could be as bad as coal. However, even if fugitive emissions can be kept to a minimum, the carbon content of gas is high, and **investing in unconventional gas now will lock us into dangerously high greenhouse gas emissions making it extremely difficult to meet our legally binding carbon reduction targets by 2050.**

Abundant, cheap energy?

Extravagant claims have been made of cheap energy coming from unconventional gas production but experts from Lord Stern to Lord Browne have stated that there will be no significant reduction in energy prices. **Ex-World Bank economist Stern described the UK's dash for gas as founded on 'baseless economics,** while Browne, chairman of drilling firm Cuadrilla Resources has said that shale gas won't have a 'material impact' on gas prices.

What is the threat for Scotland?

Not only is the most advanced unconventional gas development in the UK here in Scotland – Dart Energy's plans for commercial coalbed methane at Airth – but the British Geological Survey are planning to release a study on Scotland's shale gas potential this summer. The UK Government's persistent wooing of the shale gas industry includes offering tax breaks to onshore unconventional gas operators, which will of course be open to any companies taking up licenses in Scotland. DECC plan to tender for the 14th round of onshore oil and gas licensing in **Autumn 2014, when a vast swathe of central and southern Scotland will be offered for shale gas and coalbed methane exploitation.**

What Friends of the Earth are calling for

The concerns highlighted above have led to bans and moratoria around the world, including a ban on all coalbed methane drilling within 2km of communities and sensitive industries in New South Wales, Australia, a 2-year moratorium in Ireland and an outright ban on hydraulic fracturing in France.

We welcome improvements in the new draft Scottish Planning Policy (SPP) which has removed any presumption in favour of unconventional gas, and requires buffer zones between onshore gas drilling and communities. However – in line with recent EU guidance⁵ – **it is critical that SPP specifies a minimum distance for buffer zones,** otherwise communities across central Scotland face a postcode lottery of actual or tokenistic protection. We consider that 2km – from underground horizontal bores – would reflect emerging evidence on health impacts.

Buffer zones can help to protect communities from the very worst of the local environmental and health impacts of unconventional gas extraction, but they will do nothing to mitigate against the climate impacts. Therefore, **Friends of the Earth Scotland consider that Scotland should lead the way in the UK by banning this unsafe and unnecessary form of energy.**

Contact

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Researchers from the University of Melbourne have called for a halt on unconventional gas development due to health uncertainties: <https://www.mja.com.au/journal/2014/200/4/harms-unknown-health-uncertainties-cast-doubt-role-unconventional-gas-australias>

⁴ Bamberger and Oswald, Impacts of Gas Drilling on Human and Animal Health, 2012, *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy* <http://baywood.metapress.com/link.asp?id=661442p346j5387t>

⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014H0070&from=EN>